AGS/RHIC

***R**adiation*

***S**afety*

***C**ommittee*

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Minutes of Sub-Commitee review of May 2, 2000

Review of MP-6 Interlocks with the new Bypass Line

Attending: J. Alessi, A. Etkin, M. Wiplich, C. Schaefer, and D. Beavis

Motivation: A new beamline has been added to MP-6. This allows MP-6 to deliver beam to the target rooms 2, 4 and to HITL. Previously only MP-7 was capable of delivering beams to these areas. The sub-committee reviewed the logic for the changes necessary for the area changes.

The sub-committee approved the proposed changes.

Documentation was provided to the committee by J. Alessi and M. Wiplich (see attachments 1-3).

Changes to the MP-6 Low energy (LE) and high energy (HE) cup controls are necessary for the radsafe system to turn the beam off. These changes have been reviewed and an ECN issued.

The proposed logic for the conditions to interlock MP-6 was discussed. The new logic takes into account that MP-6 can now be a source of radiation (beam) to target rooms 2,4, HITL, and the MP-7 area. The radsafe system response matrix was reviewed and approved. An ECN will need to be issued for the wiring changes necessary to implement the new logic. **(CK-Tandem-2000-1)**

A chipmunk will be installed near the new bypass slits to provide better area radiation monitoring with the bypass line. **(CK-Tandem-2000-2)**

There is a concern that the present use of radiation monitors may not adequately cover all the potential radiation sources. Under certain operating conditions the tandem operator can allow personnel into various zones. During such accesses the radiation levels at the various detectors must be below 50 mrem/hr for the machine can operate. Detected radiation levels above 50 mrem/hr will cause the appropriate safety devices to terminate the radiation. However, an examination the possible source locations suggests that the radiation detectors are not located close enough to all potential sources. The committee recommends that this mode of access not be used if there is the potential for high radiation levels. **(CK-Tandem-2000-3)** A study using MP-6 should be conducted during its commissioning to understand if there is a need to permanently modify this access mode. The tandem operators presently use a computer program, which evaluates if there is the potential for high secondary radiation.

The new bypass line can create beam faults in new locations within the accelerator room. Faults with a deuteron beam at 9DH01 or 7DH01 could cause levels in the HITL tunnel. Deuteron beam should not be allowed in the new bypass line until either calculations for such faults are reviewed, a fault study conducted, or appropriately approved protection means are provided in the HITL tunnel. **(CK-Tandem-2000-4**). It is expected that these faults are not much higher than the fault study conducted with the MP-7 beam hitting 11DH01.

Deuteron beams may have the potential to create radiation levels above 50 rem/hr. The access controls for the areas may not meet the required standards of independent interlock systems for radiation levels above 50 rem/hr. Therefore, deutron beam should not be operated from either MP-6 or MP-7 until an appropriate review is conducted of the potential radiation levels. **(CK-Tandem-2000-5)**

The critical devices for the tandem should have an engineering review conduct before the next operating cycle. **(CK-Tandem-2001-1)**

Attachments:

1. Memo J. Alessi to D. Beavis, April 25, 2000, "Tandem Radiation Safety System
2. Memo M. Wiplich to RSC, April 25, 2000, "Upgrades to TVDG radsafe System".
3. Memo M. Wiplich to RSC, April 25, 2000, "Rewiring of MP-7 HE and LE Cup Controls"